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SECONDARY EDUCATION AND SCHOOL DISTRICT ORGANIZATION.

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GREAT PLAINS SCH. DIST. ORGANIZATION, LINCOLN, NEB

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THE THESIS IS PROPOSED THAT EFFECTIVE SCHOOL ORGANIZATION IS NECESSARY TO REALIZE QUALITATIVE SECONDARY EDUCATIONAL PROGRAMS WITH ECONOMY. TO SUBSTANTIATE THE THESIS, A COMPREHENSIVE ASSESSMENT OF SECONDARY EDUCATION IN RELATION TO SCHOOL DISTRICT ORGANIZATION WAS CONDUCTED. THE SPECIFIC OBJECTIVES INCLUDED WERE--(1) THE EXAMINATION OF THE PRESENT STATUS OF SECONDARY EDUCATION, (2) THE EXPLORATION OF MINIMUM STANDARDS, (3) THE EXAMINATION OF SCHOOL DISTRICT ORGANIZATION, AND (4) THE OUTLINE OF AN OPTIMUM SECONDARY SCHOOL PROGRAM. STUDIES TEND TO SHOW THAT SMALL HIGH SCHOOLS ARE MORE EXPENSIVE, FAIL TO OFFER BROAD INSTRUCTIONAL PROGRAMS, AND ARE UNABLE TO ATTRACT QUALITY STAFF. IN AN ATTEMPT TO ESTABLISH HIGH QUALITY EDUCATIONAL PROGRAMS, STANDARDS HAVE BEEN ESTABLISHED BY SCHOOL DISTRICTS, STATES, AND LEADERS AT THE NATIONAL LEVEL. RESEARCH INDICATES THAT TO MAINTAIN QUALITY AND ECONOMY THE OPTIMUM SIZE SECONDARY SCHOOL SHOULD RANGE IN SIZE FROM 700-900 STUDENTS. THIS SIZE WOULD PERMIT A BROAD PROGRAM OF STUDIES AND ACTIVITIES WHICH SHOULD PROVIDE BETTER INSTRUCTIONAL METHODS, WELL-TRAINED TEACHERS, MORE ADEQUATE SPECIAL SERVICES, FUNCTIONAL BUILDINGS, AND AN ATMOSPHERE CONDUCIVE TO CHANGE. (ES)

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SECONDARY EDUCATION AND SCHOOL DISTRICT ORGANIZATION

by

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October 23, 1967

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FOREWORD

The impact of scientific, technological, social and economic change on the American way of life necessitate a re-examination of the educational system. These changes modify established needs and create new needs to be met by the public school system. Instructional programs and supporting services must be developed to meet these needs.

The primary purposes of school district organization are to make possible: (1) the desired quality or excellence of the programs and services; (2) the efficiency of the organization for providing the programs and services and, (3) the economy of operation, or the returns received for the tax dollar invested in education.

Secondary education is one of many very important segments of the total educational operation. Dr. Frank Stone, the University of Iowa, was invited to make an assessment of secondary education in relation to school district organization. This paper represents his analysis of the problem following consultation with representative educational leaders in each of the four states.

The value of this paper rests upon its utilization by those with advisory and/or decision making responsibilities about the educational structure in each state. It represents a beginning point for further study and evaluation, and for establishing criteria upon which guidelines can be developed for effective and constructive school district organization.

Ralph D. Purdy, Director
Great Plains School District
Organization Project

October 23, 1967

INTRODUCTION

The task of writing a position paper on "Secondary Education And School District Organization" for the Great Plains School District Organization Project has been both challenging and frustrating. Whether the challenge has been met can only be judged by the reader. The reader's frustration cannot be matched by that of the writer.

The experience has been stimulating, particularly in a conference with an ad hoc review committee that met in Omaha on October 9 and 10, 1967. The purpose of this review committee was to suggest revisions in the paper. There was general concensus among the conference participants about certain needed revisions. Most of the suggestions for revision have been incorporated in this final paper.

Members of the Omaha Conference are listed on the following page.

OMAHA CONFERENCE PARTICIPANTS

	High School Principals	Superintendent Of Schools	Professors	State Departments
Iowa	Bernard Bolton Thos. Jefferson High School Council Bluffs -- Clarence Martin Sheldon High Sch. Sheldon	Paul Wallace Audubon	Dr. Franklin Stone University of Iowa Iowa City	
Missouri	Alvin Lowe Jr.-Sr. High Sch. Marshall	Joe Herndon Raytown	Dr. Frank Heagerty Univ. of Missouri Columbia	
Nebraska		George Bailey Bellevue	Dr. Galen Saylor 300 Teachers Coll. Univ. of Nebraska Lincoln	Dr. Wm. Schroeder State Director Gr. Plains Project Lincoln -- Glen Shafer No. Central Super - visor Lincoln -- Roger Farrar School Plant Services Lincoln
South Dakota	Bruce Crockett Sr. High School Mitchell			Earl Boxa State Director Gr. Plains Project Pierre -- George DeBow Adult Education Pierre

Dr. Ralph Purdy, Director, Great Plains Project, 411 South 13th St., Lincoln, Nebraska

I. Objectives of the Position Paper

A. Basic Objectives

The basic objective of this position paper is to propose the thesis that effective school organization is necessary to realize qualitative secondary educational programs with economy.

There appears to be little quarrel among most people in the United States about trying to achieve high quality education. The disagreements start to emerge when various proponents of quality education begin to prescribe the particular means for achieving the quality goal. The term "Effective School Organization" opens another area of little consensus.

In examining the thesis that effective school organization is necessary to realize qualitative secondary education programs, this paper will explore the essence of the problem within the limit of fifty pages.

B. Other Objectives

If we are to defend the thesis stated, it will be necessary to explore various aspects of the problem. Some other objectives of this paper, then, will be to:

1. Examine the present status of secondary education.
2. Describe some systems of minimum standards.
3. Review ideas pertaining to school district organizations as stated by researchers and authorities.
4. Outline an optimum secondary school program.
5. Discuss the implications for school organization.

C. Definition of Terms

In order to find common ground for understanding of basic words or phrases used in this paper the following definitions are offered:

High Quality Education - An education that results in the development of each individual to his highest degree in basic skills of communication, understanding of fundamental concepts in many fields of learning, and the ability of the individual to utilize his skills and understandings in the society in which he lives.

Effective School Organization - In the context of this paper, an organization which can insure adequate financial resources, a unified and complete school program, a qualified professional staff, adequate buildings and equipment, and extensive special services to meet the needs of students.

Economy - The efficient investment of money or effort to bring about a desired outcome. This definition does not imply cheapness since the efficient use of human and material resources demands enough investment to insure the results sought.

Secondary Education - In the context of this paper, the education offered in the final three or four years of a school program from kindergarten through twelfth grade.

Optimum - The most favorable. In the context of this paper the most favorable secondary educational program and support to bring about maximum learning for students.

Local - In the context of this paper, the word local refers to a community that is regional and large enough to insure optimum conditions for the ultimate learning experiences for students.

D. Summary

This paper proposes the thesis that there is a rational basis for the organization of schools in order to bring about high quality education for children and youth with economy.

II. The Present Status of Secondary Education

To attempt to describe the present status of secondary education in breadth and depth would result in many volumes of material. In order to accomplish the task for the purposes of this paper, selected information and illustration will be used.

A. Enrollment

The four state area under study can be characterized as having relatively small secondary school enrollments.

The following tables illustrate this charactorization. The tabulation of schools by size was done from data furnished by the State Departments of Education in the four states. Since the data are reported in a variety of ways, the figures in the tables are in many cases "derived" from the State Department information. In the tables, the number of high schools (9-12) are enrollment potential not enrollment of actual schools among the larger high schools. In the smaller schools, most of the organizational patterns include grades 9-12 and are actual enrollments by size group.

TABLE I

HIGH SCHOOL SIZES-(9-12)

BY NUMBER OF SCHOOL UNITS

Size Group	Iowa		Missouri		Nebraska		South Dakota	
	No.	%	No.	%	No.	%	No.	%
0-99	33	7.1	95	18.4	162	46.3	85	38.1
100-199	160	34.4	131	25.4	101	28.9	82	36.8
200-299	113	24.3	84	16.3	36	10.3	20	9.0
300-399	52	11.2	41	8.0	10	2.9	14	6.3
400-499	29	6.2	32	6.2	7	2.0	8	3.6
500-699	31	6.7	36	7.0	11	3.1	4	1.8
700-899	14	3.0	19	3.7	1	0.3	3	1.3
900-1,299	7	1.5	21	4.1	5	1.4	2	0.9
1,300-1,799	10	2.2	22	4.3	4	1.1	2	0.9
1,800 +	16	3.4	34	6.6	13	3.7	3	1.3
Total	465	100.0 %	515	100.0 %	350	100.0 %	223	100.0 %

TABLE 2

HIGH SCHOOL SIZES - (9-12)

BY TOTAL STUDENTS IN EACH SIZE CLASSIFICATION

Size Group	Iowa		Missouri		Nebraska		South Dakota	
	No.	%	No.	%	No.	%	No.	%
0-99	2,442	1.4	7,030	2.8	11,988	13.6	5,588	11.5
100-199	23,840	13.9	19,519	7.8	15,049	17.1	11,512	23.6
200-299	28,137	16.4	20,916	8.3	8,964	10.2	4,796	9.8
300-399	18,148	10.6	14,309	5.7	3,490	4.0	4,982	10.2
400-499	13,021	7.6	14,368	5.7	3,143	3.6	3,606	7.4
500-699	18,585	10.9	21,582	8.6	6,595	7.5	2,377	4.9
700-899	11,193	6.5	15,191	6.1	799	0.9	2,557	5.2
900-1,299	7,697	4.5	23,090	9.2	5,498	6.2	2,174	4.5
1,300-1,799	15,995	9.3	35,189	14.0	6,398	7.3	2,973	6.1
1,800+	32,112	18.8	79,698	31.8	26,091	29.6	8,231	16.9
Total	171,170	99.9%	250,892	100.0%	88,015	100.0%	48,796	100.1%

TABLE 3

HIGH SCHOOL SIZES - (9-12)

By Percent of Schools and Students #

	IOWA		MISSOURI		NEBRASKA		SOUTH DAKOTA	
Size Group	% Schools	% Students	% Schools	% Students	% Schools	% Students	% Schools	% Students
0-499	83.2	49.9	74.3	30.3	90.4	48.5	93.8	62.5
500-1299	11.2	21.9	14.8	23.9	4.8	14.6	4.0	14.6
1300 +	5.6	28.1	10.9	45.8	4.8	36.9	2.2	23.0
Total	100.0	99.9	100.0	100.0	100.0	100.0	100.0	100.1

Note that the size groups have been collapsed in this table.

It can be observed in Table 3 that most of the high schools in the four states are smaller than 500 enrollment:

Iowa - 83.2%

Missouri - 74.3%

Nebraska - 90.4%

South Dakota - 93.8%

Relatively few high school students are enrolled in schools that cluster around an optimum size (proposed in Part V of this paper):

Iowa - 21.9%

Missouri - 23.9%

Nebraska - 14.6%

South Dakota - 14.6%

It will, of course, be argued that the number of very small high schools in the four states area are a product of population sparsity. This argument may hold for some school districts but cannot be established for the total area of each.state. With modern transportation, road systems and communications, the relative size of administrative units can undergo much change without losing the concept of a "local" school district.

B. A Particular Case of Five High School Districts

Throughout the four states area there have been innumerable school district organization studies. One such study will illustrate the observations to be derived. The students in the fragmented situation described are the ultimate losers.

In this illustrative study,[1] five small school districts examined the feasibility of a merger into one administrative unit. Past, current and projected enrollments of the individual districts and the merged unit are listed below:

TABLE 4

STUDY OF FIVE HIGH SCHOOL DISTRICTS

ENROLLMENT - GRADES 10-12

	Individual School					
	A	B	C	D	E	Merged[2]
1961-62	70	132	53	102	59	416
1965-66	107	137	70	120	72	506
1970-71	74	141	46	79	72	412

[1] This study is illustrative, but is an actual documented case.

[2] It should be noted that the enrollment projection for 1970-71 shows a decrease in enrollment. Even the merged high school is not of optimum size.

The survey team studied the transporting of students to a central high school and could find no difficult problems. The maximum distance for any student was twenty miles and there were very few students in these outlying areas.

In Appendix A, some selected subject offerings and class enrollments in the five districts are listed. A summary of the present enrollments and possible enrollments is presented below:

TABLE 5

STUDY OF FIVE HIGH SCHOOL DISTRICTS - SUBJECT ENROLLMENTS

	Present in -Five Separate High Schools			Possible Arrangement Under Merged High School		
	Enrolled	Sect.	Av. Size	Enrolled	Sect.	Ave. Size
Business Education	421	27	15.6	611	22	27.8
Foreign Language	74	9	8.2	240	11	21.8
Homemaking	135	14	9.6	170	9	18.9
Mathematics	296	19	15.6	370	15	24.7
Total	926	69	13.4	1,391	57	24.4

This merely illustrates the fact that in the merged high school, class enrollments in the particular fields of study could be increased by fifty per cent with a decrease of seventeen per cent in demand for classroom teachers.

The efficiency illustrated is not limited to sheer numbers alone. This particular study was initiated by the local districts because they were having little success in attracting teachers and having virtually no success in employing highly qualified teachers.

C. Observations of Inadequacies

A large number of students in a school does not guarantee quality education. It is recognized that the smaller high school may be able to provide high quality education for students provided:

1. The school has a broad educational program of courses and services;
2. The school can attract qualified personnel;
3. The Local District and the State are both willing to pay the cost of inefficient use of professional personnel;
4. The district is willing to build facilities for a modern school program;
5. The district is willing to provide an abundance of supplies and equipment for upgrading the teaching-learning process;
6. The district can find, employ, and effectively utilize the specialists needed in a modern educational program.

Study and observation indicate that typically the small high school:

1. Cannot attract and hold highly qualified teachers and administrators;
2. Does not employ and utilize specialists to enhance learning;
3. Does not provide modern, well-equiped facilities;
4. Does not provide the quantity of instructional materials needed in the teaching-learning process;
5. Cannot provide the breadth of subject offerings needed by students in the modern era;
6. Demands more dollars of investment per pupil than is necessary.

Communities in the less populated areas of the four states are making efforts to attract industry in order to stop the out-migration of people, stabilize employment and provide for payrolls and taxing base for public services. Except for some agri-business related industries, the less populated areas are meeting with limited success in luring industries to their areas.

One of the contributing factors in their inability to persuade industrial leaders to live in these communities is the lack of attractive, quality programs in education.

The present status of many secondary schools in the four-state area can be characterized by:

1. Inadequate staffs
2. Limited educational offerings for students
3. Poor housing
4. Insufficient supplies and modern equipment
5. Uneconomical use of public revenues.

D. Summary

Large numbers alone do not insure good quality educational programs. This argument begins to collapse, however, when we review the price we must pay for small organizations that cannot provide the human and material resources to provide the kind of education required by modern society.

III. Systems of Standards

In an effort to provide both high quality and adequate quantity of education, the school systems, the states, and leaders at the national level have established standards, criteria or stimulation to bring about these desired results.

A. North Central Association of Colleges and Secondary Schools

The North Central Association of Colleges and Secondary Schools is an accrediting agency. The object of the association is the development and maintenance of high standards of excellence for universities, colleges and secondary schools. Further statements of objectives are:

1. Continued improvement of the educational program and the effectiveness of instruction.
2. Establishment of cooperative relationships between secondary schools and colleges.
3. Maintenance of effective working relationships with other educational organizations and accrediting agencies.

Membership in the organization is voluntary.[1]

The evaluation of high schools desiring to receive accreditation is done with the guidelines established under the Evaluative Criteria.[2]

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[1] From the constitution of the association.

[2] Evaluative Criteria, 1960 Edition, Washington, D. C. National Study of Secondary School Evaluation, 1960.

This organization encompasses nineteen states and the American dependent schools.[1] Iowa, Missouri, Nebraska and South Dakota are in the area of the North Central Association. Schools desiring to be accredited by the Association must apply for membership, do an extensive self evaluation and must be examined by a committee of competent specialists who form an evaluation team. Periodically, each member school must do a further self-evaluation and be visited by an evaluation team.

Administration of the program is handled through a state chairman and a state committee. The state chairman and committee function under the policies of the entire association. The state chairman and committee recommend the admission of schools and the classification of schools that are members. Final approval of admission and classification rest with the Association.

The purposes and functions of the North Central Association have changed since its beginning in 1895, but the major thrust has been in the direction of higher quality schools. In appendixes B, C, and D, three aspects of the North Central are briefly listed:

B - N.C.A. Criteria Schedule

C - N.C.A. Teacher Preparation

D - High School Offerings

Standards of the N.C.A. have, of course, changed from time to time in the seventy-two years of the organization. The standards have

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1 The North Central Association is one of six such accrediting associations in the United States.

been restrictive at times and liberalized at other times. An assessment of the impact of N.C.A. on the quality of school programs would be difficult and subjective. C. H. Judd asserted that "...I know of no organization that is more powerful in its influence on secondary schools than this organization."[1]

The North Central Association has in the past included three-year senior high schools and four-year high schools in its membership. The school year 1967-68 will find the first junior high school eligible for membership. The Association booklet states that:

> The Committee believes that the following document is representative of the best thinking of the leadership in junior high school education in the North Central Association and believes these guidelines will assist greatly in insuring programs of education which allow each adolescent to realize his potential through a program of education suited to his individual needs.[2]

Despite the important impact of the North Central Association over the years, the criteria for membership are couched in minimal terms. The goals of the criteria are to raise the operation of schools to some optimum level of excellence. The attempt to utilize qualitative rather then purely quantitative standards has been a relatively recent trend. The establishment of progress criteria was conceived as a

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[1] C. H. Judd, "Federal Relations with Secondary School Administrators," The North Central Association Quarterly, Vol. XV, No. 3, January, 1941.

[2] Booklet on "Policies, Principles and Standards for the Approval of Junior High Schools," North Central Association of Colleges and Secondary Schools, 1967-68, p. 2.

method of adopting additional standards of excellence.[1]

A recently published booklet illustrates the continuing efforts of the North Central Association to upgrade the schools. This document is the "Proposed Policies and Criteria for the Approval of Secondary Schools." The tentative criteria in this publication are proposed for discussion by members schools. If accepted by the membership the new and broadened criteria will go into effect in late 1968.

Since there has been no independent research done on the accomplishments of N.C.A. we can only accept the judgments of the Association and its member schools that the quality of secondary school programs has been higher because of the existence of the Association.

B. State Standards

The variety of state standards for schools among the four states is too great to include in any detail in this paper.

The laws of each state authorize school standards to be established. Code references to school standards are as follows:

Iowa Code - Chapter 257.25

Missouri Code - Chapter 161.092 (9)

Nebraska Code - Chapter 79-328 (11); 79-495; 79-496

South Dakota - S. D. Code 1960 - Supplement 15.0803, amended by chapters 37 and 38, 1967

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[1] Booklet on "Policies and Standards for the approval of Secondary Schools," North Central Association of Colleges and Secondary Schools, 1966-67, p. 5

Establishment of standards is generally assigned to the State Department of Public Instruction. The most notable exception to this practice is the highly prescriptive statutes of the state of Iowa. This state has the most specific delineation of school subjects to be taught of any state of the union.[1]

School standards as outlined by statute and/or State Department regulations deal with such topics as:

General Standards

Administration

Educational Program

Services

Personnel

Plant

Equipment

In particular states, schools are classified by quality and/or quantity measures. One state outlines standards for in-service training of professional staff.

Enforcement of school standards varies from non-recognition or non-acceptance to loss of state support funds.

In appendix D, the table outlines the high school offerings as part of the standards or criteria for accreditation in the four states

[1] George Marconnit, Current Curriculum Requirements Mandated by the Legislature in each of the States, unpublished doctoral dissertation, University of Iowa, Iowa City, Iowa, Table II, p. 127.

and the North Central Association. It should be carefully noted that these offerings or subjects to be taught are expressed as minimums not as optimums or maximums.

C. National Influences

Although we cannot classify national influences as standards in the same way we refer to the criteria of the North Central Association and the four state departments of education, the effects of these influences are often the same.

Four major national influences are selected for brief mention:

1. Criticism-Setting the Stage
2. The National Defense Education Act
3. The Curriculum Studies With National Implications
4. The Work of Dr. James B. Conant

None of these will be discussed in detail.

Criticisms of the schools did not start with the orbiting of Sputnik in 1957. In his recent writing, Frank C. Jennings points out that the early stage of the recent revolution in American education was, in part, set through statements about education issued by such critics as Robert Maynard Hutchins, Rudolf Flesch, Arthur Bestor, Mortimer Smith and Hyman Rickover.[1] It should be pointed out that education has had innumerable critics from inside and outside the education establishment.

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[1] Frank C. Jennings, "It Didn't Start With Sputnik," Saturday Review, Vol. 50, No. 37, September 16, 1967, pp. 77-79, 95-97.

An appraisal of education reported by the Rockefeller Panel in 1958 pointed out:

> We do not wish to absolve our educators of the mistakes they have made. At the same time, we should not attempt to absolve ourselves. The fateful question is not whether we have done well, or whether we are doing better than we have done in the past, but whether we are meeting the stern demands and unparalled opportunities of the times. And the answer is that we are not.[1]

Educators tended to be defensive about criticisms leveled at their institutions and the outcomes of learning. Despite this posture of educators, the critics wielded influence in setting the stage for changes.

Following Sputnik the Congress passed the National Defense Education Act. From 1958 to date the money invested through the National Defense Education Act has been primarily directed toward developing staff and services in:

Science

Mathematics

Foreign Language

Guidance

The program of training and retraining teachers in these areas is well-known. The availability of funds for purchasing materials and equipment has resulted in placing learning tools in the hands of classroom teachers and students. Additional subject areas have subsequently

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1 "The Pursuit of Excellence, "Panel Report V of the Special Studies Project, Rockefeller Brothers Fund, Garden City, N. Y., Doubleday and Company, Inc., 1958, pp. 21-22.

been added to N.D.E.A. support. The Elementary and Secondary Act of 1965 has assigned substantial federal funds for improving education.

The attention given to learning of children and youth by leading authorities and students in the various disciplines has resulted in the development of new curricula and instruction methods in

English

Foreign Language

Mathematics

Science

Social Studies

as well as other areas of learning. Many of these new materials and methods have been widely adopted in secondary schools of the United States.

The investigations and writings of Dr. James B. Conant are well known among educators and lay people. Despite certain disquietude among educators in the initial stages of his work, one of the educators organizations, The National Association of Secondary School Principals, sponsored his most recent study and publication.[1]

In this latest publication, Conant proposes that a widely comprehensive high school should as a minimum meet the criteria listed in Appendix F.

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[1] James B. Conant, The Comprehensive High School, New York, McGraw-Hill, 1967.

National influences are not standards in the normal sense of the meaning but they often have the same effect.

D. Summary

There have been innumerable influences on education in recent years. Some elements that have had impact on the quality and quantity of educational offerings have been from statements of critics, accrediting associations such as the North Central Association, standards of the State Department of Public Instruction and leadership from individuals and organizations at the national level.

IV. Review of Ideas of Organizations, Researchers and Authorities

A. Proper Size

One of the areas of study that has occupied the time of many researchers is the question of proper size for a secondary school.

Depending on the factor or criteria used, the outcomes of this research have generally found that the proper size is somewhat elusive.

Based on a summary[1] of research studies related to the size of secondary schools the outcomes are as follows:

TABLE 6

RESEARCH STUDY SUMMARY - PROPER SIZE

Enrollment	No. of Studies Minimum Size	No. of Studies Optimum Size
300-499	7	2
500-699	2	5
700-899	1	3
900-1,099	0	2
1,100 +	3	4

When considering the factors used in the research studies the ranges of size are found in the following table.

1 Summary in Appendix B taken from a paper by Stephens, Spiess and Kurtzman, "What Does Research Say About The Proper Size of Local School Districts?" from A Study Of The Appropriate Functions and Services Of A Multi-County Intermediate Education Unit (Regional Service Agency) In The State Of Iowa.

TABLE 7

RESEARCH STUDIES - PROPER SIZE RANGES

Factor:	Minimum Range	Optimum Range
Achievement	300-400	400-999
Assignment		500-plus (single study)
Cost	350-1,000	500-1,000
Educational Programs	300-1,000	
Activities		150-399 (single study)
Activities (Parent Reaction)		1,200-1,599 (single study)
Teacher Qualifications	800 (single study)	
Special Services	400-500 (single study)	750-900 (single study)
Library	1,000 (single study)	
Counseling		400-999 (single study)
School Plant		1,500-2,400
Staffing and Flexibility		700-1,500 (single study)

From the research evidence at hand it is apparent that too many states in the midwest have been setting the proper measurement of school size below the minimums and far below the optimums.

B. Curriculum

The foment in curriculum and subject organization is too well known to document in this paper. The new programs developed or being

developed extend to most of the basic subjects in the secondary schools:

English - Language Arts

Foreign Language

Mathematics

Science

Social Studies

In addition, some work is going on in the fields of:

Agriculture

Business Education

Homemaking

Industrial Education

Experimental studies are evident throughout the country in:

Art

Creative Writing

Drama

Humanities

Music

The problem of the knowledge explosion is put into perspective in the comparison made by Harold Clark[1] when he points out that to discover new knowledge in the United States, we spent:

in 1890 - $10,000,000

in 1965 - $20,000,000,000

[1] Quoted in Sidney Sulkin's article "The Challenge Summarized." in The Bulletin of the National Association of Secondary School Principals, Vol. 50, No. 311, September, 1966, p.74.

These investments in knowledge were made by both the private and public sectors of our society.

The sheer magnitude of this investment means that specialists in the various fields of knowledge must work constantly to keep pace with changes taking place in both scope and rate.

If education maintains a "Business as Usual" attitude toward the growth and organization of knowledge, we will fall hopelessly behind or see the educational enterprise assigned to those who will keep pace.

C. Instructional Methods

In addition to the explosion of knowledge, education is faced with revising methods of teaching in order to enhance the learning that students must do.

There is little doubt that the printed page is here to stay and will be a continuing means of transmitting knowledge.

A number of other methods and materials are in the early adoption stages in this country:

Programmed learning (printing alone or with machines)

Television (closed or open circuit)

Telewriter

Computer-assisted instruction (printing and picture tube)

Individualized learning cells (with both sound and sight)

Language laboratories

Taped Texts

And others that are multi-sensory in nature.

Industry in the United States has pioneered the use of many of these new devices in training personnel. The adoption of modern technological methods can help education keep up with the onward rush of the knowledge race.

The developments in new educational media are very much in evidence in the Midwest. The 13th Audio-Visual Leadership Conference, held annually at West Okoboji, Iowa, in August 1967, had as its theme, "Systems, Automation and the Future of Educational Media". This conference is co-sponsored by the Department of Audio-Visual Instruction, National Education Association, and the University of Iowa, Iowa City.[1]

D. Staffing

One of the critical problems faced by the nation is the shortage of teachers at all levels. Time may help to alleviate the shortage of teachers so far as sheer numbers are concerned. However, the demand for excellent teachers may never really be met.

The evidence of continuing demand for teachers at the secondary school level is revealed in the following table:

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[1] Summary Report of this conference should be available by December, 1967, from the Department of Audio-Visual Instruction, N.E.A., or the Extension Division, University of Iowa, Iowa City, Iowa.

TABLE 8

SECONDARY CLASSROOM TEACHERS

	Secondary Classroom Teachers[1]	
	Public Schools	Non-Public Schools
1955	408,000	51,000
1965	749,000	74,000
1975 (projected)	998,000	91,000

The numerical growth will not be as high from 1965 to 1975 as it was from 1955 to 1965. We can anticipate, however, that the pressures will still be great. We can further anticipate that the standards for recruitment and selection of secondary teachers will become progressively higher.

As the standards for secondary teachers entering the profession continue to go up, the new teachers will seek the kind of schools that can meet their higher expectations.

It is easy to foresee further specialization in the decade ahead. Because of the increase in knowledge, the innovations in teaching media, the need for adequate guidance services, the development of instructional materials centers and innumerable other demands for services, the need for specialists in education will be increasing.

Since these burgeoning demands are evident, the need for highly trained administrators will become more pressing. The emergence of the systems approach to school problems is becoming more apparent

1 United States Office of Education, Projections of Educational Statistics to 1975-76, 1966, Table 22, pp. 40-41.

with each passing year. The training and re-training of administrators to meet these challenges will demand more highly qualified administrator-trainees than is in evidence today. The top executive officers of school systems or school buildings will need to be much more highly skilled than the typical administrator on the current scene. The chief administrators can then be expected to find or develop staff specialists to help carry on the functions of the school or school system.

E. Special Services

With the growing needs for individualizing attention to student needs, there are increasing demands for special services of various kinds.

Among those services are:

1. Psychological services
2. Social services
3. Health services
4. Guidance services
5. Instructional materials - learning services
6. Field experience services
7. Laboratory learning services
8. Services to the handicapped[1]

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[1] Illustrated by such publications as: Iowa State Department of Public Instruction Bulletin, "Secondary Education For All-- Including the Handicapped," prepared by Kroloff and Ziolkowski.

9. Services to the culturally developed[1]

10. Services to the educationally gifted

and many others.

These new services are designed to focus on the needs of individual students. They are not being arbitrarily imposed on the schools. They are, rather, the outcomes of demands by society to help each student meet his individual problems and needs.

F. Housing

The criteria for adequate housing of secondary education are being revised as society demands better education for children and youth. We are no longer content to limit learning to the four walls of a classroom.

The definition of adequate housing for the 1940's does not meet the needs for the future. The emphasis on flexibility and expandibility is replacing the rather rigid sterotypes of our past.

In addition to classrooms we are identifying other spaces according to functions. This can be characterized by a few illustrations:

1. The old study hall and small library are being replaced by instructional materials centers with extensive facilities for printed matter, films, sound tapes, individualized study

[1] Bloom, Davis and Hess, Compensatory Education For Cultural Deprivation, New York, Holt, Rinehart and Winston, 1965.

carrels, seminar rooms, connections with computer systems and connections with central audio-visual facilities.

2. The science laboratories are being redefined as learning spaces and are being reorganized to serve more students for longer periods of time.

3. The spaces for mathematics are undergoing changes to provide a place for laboratory equipment.

4. The art spaces are being expanded to provide a variety of experiences for students in this area.

These are a few of the many spaces that are undergoing redefinition in the secondary schools of the future.

G. Equipping

Since our society is demanding higher quality education for all children and youth, the need for "tooling up" in education is apparent. The nation has recognized part of that need through resources made available to school districts under the National Defense Education Act of 1958 and subsequent amendments to this Act, as well as the Elementary and Secondary Act of 1965.

With combined financial support of the federal, state and local school governments the equipping of schools to help meet the learning needs of students has begun to be realized.

The need to define the optimum equipment for learning must be accomplished in such areas as:

1. Learning materials centers
2. Laboratories in all areas of knowledge
3. Computer assisted instruction

Societal demands for quality education have forced educators to identify the place of educational means and media of all kinds in order that the learning of students will be facilitated.

H. Provisions for Changes

One of the fundamental problems in American education is to find ways of providing for change. We must continue to recognize the need to create a climate in local schools that will facilitate change to meet constant demands for more learning.

Ronald Lippitt and Associates have identified the four most frequently noted sources of resistance to change:

1. Reluctance to admit weaknesses
2. Fear of failure or awkwardness in trying to initiate a new practice or behavior pattern
3. A fatalistic expectation of failure instilled by previous unsuccessful attempts to change
4. A fear of losing some current satisfaction[1]

[1] Ronald Lippitt et al., The Dynamics of Planned Change, New York, Harcourt Brace and World, 1958, pp. 180-181.

Richard Miller has suggested seven factors in education that are inhibiting change:

1. The rut of experience
2. Administrative reticence
3. Educational Bureaucracy
4. Insufficient finances
5. Community indifference and resistence
6. Inadequate knowledge about the process of change
7. Inadequate teacher education programs [1]

Miller further outlines four specific factors supporting educational change:

1. International involvement
2. Phenomenal growth of the knowledge industry
3. Pressure from outside the realm of professional education
4. Advances in the behavioral sciences [2]

In order to survive in the world of competition, business and industry have been forced to recognize and adapt to changing needs and demands of citizens.

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[1] Richard I. Miller, "An Overview of Educational Change" in Miller (ed.), Perspectives on Educational Change, New York, Appleton-Century-Crofts, 1967, pp. 10-18.

[2] Ibid., pp. 5-6.

Two recent reports of innovation indicate that educators are concerned about planning for a change. The North Central Association special issue of Today published in May, 1967 states:

> High schools have changed their curricula and ways of organizing for learning more in the last decade than in any previous period of time. . . The nature of innovations currently receiving wide attention suggests increasing recognition of certain conditions which have been too long, and too often ignored:
>
> - Students vary greatly in ability to learn.
> - School day is too regimented.
> - Teachers' specialities and abilities vary.[1]

The other publication reveals some results of a special study: "How Schools Innovate."[2]

I. Summary

Research indicates that an optimum size of a secondary school can be derived. The exciting work in curriculum development for secondary education is under way. The development of technology in teaching-learning calls for assessment and adoption of new methods in the classroom. The nation still faces a shortage of well-qualified teachers. The learning needs of our students demand the employment of educational specialists. The "adequate" housing of the past will not suffice for modern demands on education. Teachers and students must have the proper equipment for learning in today's classrooms. Educators must be made aware of the techniques to overcome resistance to change in education.

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1 "National Innovation Study Indicates Broad Attack on School Weaknesses," Today, North Central Association, Special Issue, May, 1967, p. 1.

2 "Special Study: How Schools Innovate," Nation's Schools, Vol. 79, No. 4, April, 1967.

V. An Optimum Secondary School

Rather than deal with minimums, as we find so often among standards and criteria, this part of the paper will briefly propose optimum conditions for a secondary school.

A. Optimum Size

Among the research and literature, there seems to emerge some findings that can let us conclude that the optimum enrollment for a good secondary school is somewhere between

700 - 900 students.

This is not to say that a good secondary school cannot have 500 or 1,500 students. But considering the factors of

Achievement

Cost

Educational Programs

Staffing

Special Services

Plant

we establish the optimum size of a secondary school at

700 - 900 students.

B. Curriculum

The optimum secondary school should offer a broad program of studies and activities for students including:

English Language Arts and Literature

Two or More Foreign Languages

Mathematics

Sciences

Social Studies

and Selections from (vocational and/or non-vocational)

Agriculture

Business

Homemaking

Industrial Education

as well as teaching

Art

Creative Writing

Drama and Speech

Music

Physical Education and Health

These offerings should be broad enough that a high school student can study in any one of these areas for three years in a senior high school or four years in a four-year high school.

The activities program should become a part of the broad curriculum. It should include not only some areas listed above but should provide learning experiences for students in specialized areas not specifically listed.

C. Instructional Methods

Instructional methods in the optimum secondary school will be organized to provide stimulation for self-learning of the students. The methodologies should not be geared to a kind of forced feeding and fear-oriented program of teaching.

The development of multiple activities instructional materials centers should have a high priority. The planning and organizing of laboratories in a variety of areas of learning should be accomplished.

The introduction of individualized learning and group learning technologies should begin now.

Methods of instruction should be designed to meet the needs of students rather than be geared to the convenience of teachers and administrators.

D. Staffing

The staffing of schools with well-trained, professionally oriented teachers remains as a critical problem.

There should be an accelerated and continued movement toward the requirement of a Master's Degree for all secondary teachers. The growth of knowledge demands that teachers be broadly educated and well-trained for their work. There should be a system of evaluation to determine the effectiveness of professional services.

The recruitment and assignment of teachers should be carefully planned in order to have highly qualified people working in their special areas of competence.

The in-service training of teachers should be a continuous process. The investment of substantial sums of school district funds should be made in the program for upgrading teachers.

The work of teachers in stimulating learning should be buttressed by a corps of skilled specialists.

The administration of schools should be in the hands of highly qualified people who have an understanding of modern educational theory and practice. The school district should demand and support the continuous upgrading of administrative personnel.

E. Special Services

The individual student in each school is important. The school should be able to offer special services to help solve the various learning, psychological, health and social problems faced by the student.

If we expect and demand that each student be stimulated to learn and develop to his utmost, we cannot expect the whole job to be done by classroom teachers and administrators.

Among the services that should be offered in each school are:

1. Psychological services
2. Social services

3. Health services

4. Guidance services

5. Instructional materials - learning services

6. Field experience services

7. Laboratory learning services

8. Services to the handicapped

9. Services to the culturally developed

10. Services to the educationally gifted

and many others.

F. Housing

If we expect to keep pace with the demand for learning, the housing of students must receive critical attention.

We cannot anticipate optimum learning in cramped, ill-lighted, ill-ventilated buildings that too often characterize our school buildings.

Schools should be built that can be easily rearranged and expanded. The building should be spacious enough to allow it to be converted to new learning spaces as the demands of changing conditions require.

Environment controls should be built-in with particular emphasis on lighting and air. Sound controls should be an integral part of each building plan.

The investment in an optimum learning environment can bring good returns. We should not settle for inadequate and unattractive

housing for our students. The educational program should not be limited by the rigidity of a pile of bricks and permanent walls.

G. Equipping

We have constantly demanded more and more training for our teachers. We have not accompanied this movement with the demand for placing the proper teaching-learning tools in the hands of teachers and students. The proper teaching-learning tools must go beyond the chalkboard and bulletin board. Such tools would include:

Overhead projector

Film projectors (both fixed and moving)

Television and telewriter capabilities

Audio equipment

Study carrels

The planning of buildings should include continuous open space in walls, ceilings and floors in order to facilitate cables or other means that will accommodate new developments in learning technology.

The exciting developments of equipment and materials for learning must find their way into the classrooms of the nation. The advances in learning technology must be recognized and adopted by our schools.

Nothing can replace the stimulation to learning by an outstanding teacher. But the proper equipping of a school building can enhance the work of teachers as they strive to develop the students in skills and knowledge.

H. Provisions for Change

One of the characteristics of our society is the demand for change. As we discover new methods and redefine goals, our society insists that the discoveries be made operative.

We need to recognize that educators have too often failed to see the need for change. Even when we perceive the need we often fail to earnestly seek the means for meeting the needs.

In the total concept of education, it is essential that we understand the general resistance to change, the specific barriers to change in education, as well as the forces that demand change. We must, then, deliberately set about to create the conditions and mechanisms that will remove the obstacles to change for the ultimate benefit of the students in our schools.

I. Summary

We cannot expect to bring about the quality and quantity of education demanded by our modern society if we settle for only minimum standards. We must reach for an optimum level of operation.

If we are to have an optimum secondary school program, we must:

1. Establish schools with from 700-900 students;
2. Develop a broad curriculum that can meet the needs of all students;
3. Organize our instructional methods to stimulate maximum learning for all students;

4. Provide our students with professional teachers, specialists and administrators;
5. Offer special services so the particular learning, psychological, health and social needs of students are properly handled;
6. House our students and staffs in flexible, expandable, environment-controlled, and attractive facilities;
7. Equip our schools with the proper tools for learning;
8. Build in a system that can bring about needed change.

Failure to develop optimum secondary school programs merely short-changes the students for whom we are responsible. They are the ultimate and real losers. Society suffers the loss, also.

VI. Implications For School Organization

A brief look at a special map of the United States reveals the relatively large number of school districts in the upper midwest. The four states in this study are included in this particular area. The states of the upper mid-west are generally classified as rural-oriented. The fact that some of these states are becoming more urban-oriented is well recognized. The movement from agricultural toward industrial economics is also apparent.

The loss of population in the smaller, agricultural dominated areas of the states is another phenomenon of today.

A. The Concept of Local

The concept of "local" as it pertains to school districts is changing rapidly. In the early history of these states the concept of local was oriented to a town or township. Since many of the towns and/or townships are tending to lose people to larger communities, the concept of "local" today is beginning to be broader -- encompassing "county-like" areas. As transportation, road systems and communication systems have been improved and modernized our ability to move about and communicate with each other has broadened the idea of community. Municipal and county systems of government have remained relatively fixed but school government organizations have been gradually shifting to the regional community concept.

It should be noted that there is discussion of crossing state lines in arranging good school districts. The legal means for such arrangements should be explored.

The concept of "local" is undergoing change in order to bring about stronger administrative units that can maintain the essential control of education close to the people. If the local districts are not strong, the state and federal governments may begin to assume control of weak and ineffective school systems.

Local municipal and county governments are generally staffed by people with a local orientation. In the schools systems, the search for teachers, specialists and administrators has resulted in bringing non-local people to the scene.

The more cosmopolitan outlook of people employed by local school governments has generally militated against the static concept of "local" school districts in the old sense of the word.

Since the more cosmopolitan people in education tend to stay away from the very small schools, the local schools have been faced with need to merge with other school districts into larger administrative units.

Despite some progress in the combining of small local school districts, the demands for larger and more sophisticated school programs in the four states will call for reassessment of present school district organization. We cannot continue to build minimal school

facilities that may become empty momuments to the folly of outmoded and narrow "localism." The children and youth of these states deserve the fruits of enlightened, modern thinking about optimum school district organization.

B. School Program Demands

If the students in small school districts are not to become educationally deprived, the demands for quality and quantity of school programs will have to be met. If the staffs cannot be hired, if the necessary breadth and depth of offerings cannot be achieved, if the costs per student get out of hand, the students in rural and small town areas will suffer. At worst, their schools may not be able to conduct classes. At best, these schools will offer minimum programs at high costs.

C. The Problem of Economy

If schools are to have effective organizations that can offer quality programs, the need to operate with economy must be faced.

The school district that spends $750 per student for the same programs and results as the school district that invests $575 per student cannot meet the definition of operating with economy. On the other hand a district that is investing $400 may need to assess its returns and increase the unit cost to insure the optimum results.

The efficient investment of public money and the wise utilization of relatively scarce professional people militates against the continuance of districts that are inefficient.

D. Relationships in School Organization

In the United States there are generally three systems of school organization and administration:

One level -- State Department only -- one state (Hawaii)

Two level -- State Department and local (usually county) districts -- 17 states

Three level -- State Department, Intermediate (service) units and local school districts -- 32 states

The individual school is an integral part of the local school district.

The local school district has direct relationships with intermediate units (where they exist) and with the state department.

The purpose of the district, the intermediate unit, and the state department is simply to support the learning process that is in progress in the individual school and individual learning area.

The support of the various levels of organization is generally made difficult when the individual school is not efficiently organized and administered. The support of the district, the intermediate unit and the state department is meaningful and stimulative if the individual school is well-conceived and functioning at a high level of excellence.

E. Need For Effective School Organization

If the individual school is to function effectively, there must be substantial financial and human resources available.

If the individual school program is to meet the needs of students, the size of the school must be optimum, the professional staff must be adequate in size and training, the curriculum must be broad enough and deep enough, the necessary special services must be readily available from the local district or intermediate unit, the housing and equipping must be ample, and the process for meeting changing needs must be built into the system.

Conditions vary in rural, suburban and urban school districts. A particular situation in a given community may dictate variations from an optimum size secondary school. The goal, then, should be to organize school districts in order to make possible the achievement of secondary schools as close to the optimum as possible. The implications for school district organization are that sparsely populated areas should establish administrative units that move toward optimum conditions. At the same time in urban places, where secondary schools may enroll large numbers, the internal organization of these schools should group students in a manner that recognizes an optimum size.

F. Summary

The more cosmopolitan outlook of school staffs stimulates broad based administrative units in school organization. The concept of "local" as pertains to school districts is changing with conditions of road systems and communications systems.

Programs of education to meet the needs of our modern society demand high quality and greater quantity of offerings than is available in too many secondary schools today.

The investment of public money and the utilization of scarce human resources demand a reassessment of inefficiently organized schools.

The supportive relationship of the state department and the intermediate unit can best be utilized with local school districts that are efficiently organized.

The effective organization and administration of local school districts is necessary to realize qualitative secondary school programs with economy.

APPENDICES

APPENDIX A

SELECTED SUBJECTS - FIVE SEPARATE HIGH SCHOOL DISTRICTS (ACTUAL DISTRICTS)

Subject	A		B		C		D		E		Total			Optimum		
	No. Enr.	No. Sect.	No. Enr.	No. Sect.	No. Enr.	No. Sect.	No. Enr.	No. Sect.	No. Enr.	No. Sect.	No. Enr.	No. Sect.	Ave.	No. Enr.	No. Sect.	Ave.
Business Education																
Shorthand	14	1	6	1	0	0	0	0	0	0	20	2	10.0	50	2	25.0
Typing I	30	1	87	3	28	1	10	1	10	0	155	6	25.8	190	6	32.0
Typing II	0	0	0	0	0	0	8	1	13	1	21	2	10.5	50	2	25.0
Bookkeeping	9	1	18	1	10	1	26	2	27	2	90	7	12.8	90	3	30.0
Business Law	0	0	18	1	10	1	29	2	14	1	71	5	14.2	90	3	30.0
Office Practice	8	1	16	1	10	1	15	1	0	0	49	4	12.2	66	3	22.0
General Business	0	0	0	0	0	0	15	1	0	0	15	1	15.0	75	3	25.0
Total											421	27	15.6	611	22	27.8
Foreign Language																
French I	7	1	0	0	0	0	8	1	0	0	15	2	7.5	40	2	20.0
French II	5	1	0	0	0	0	4	1	0	0	9	2	4.5	40	2	20.0
Franch III	4	1	0	0	0	0	0	0	0	0	4	1	4.0	20	1	20.0
German I	0	0	0	0	26	2	0	0	0	0	26	2	13.0	40	2	20.0
Spanish I	0	0	0	0	0	0	0	0	13	1	13	1	13.0	60	2	30.0
Spanish II	0	0	0	0	0	0	0	0	7	1	7	1	7.0	40	2	20.0
Total											74	9	8.2	240	11	21.8
Homemaking																
Home Ec. I	10	1	23	2	13	1	25	2	16	2	87	8	10.9	90	5	18.0
Home Ec. II	0	0	6	1	6	1	12	1	9	1	33	4	8.2	40	2	20.0
Home Ec. III	6	1	0	0	0	0	9	1	0	0	15	2	7.5	40	2	20.0
Total											135	14	9.6	170	9	18.9
Mathematics																
Geometry	24	2	17	1	10	1	17	1	18	1	86	6	14.3	90	3	30.0
Algebra I	29	1	22	1	15	1	19	1	11	1	96	5	19.2	100	4	25.0
Algebra II	7	1	11	1	0	0	0	0	0	0	18	2	9.0	40	2	20.0
Trigonometry	7	1	11	1	10	1	12	1	6	1	28	4	7.0	40	2	20.0
General Math.	0	0	18	1	0	0	0	0	23	1	41	2	20.5	100	4	25.0
Total											296	19	15.6	370	15	24.7
Grand Totals											926	69	13.4	1391	57	24.4

(Appendix A - continued)

Observations:

Subject Area	Current Number of Teachers Equivalency Five Districts	Optimum Number of Teachers Equivalency Combined
Business Education	6 (421 students)	5 (611 students)
Foreign Language	2 (74 students)	2 (240 students)
Homemaking	3 (135 students)	2 (170 students)
Mathematics	4 (296 students)	3 (370 students)
Total	15 (926 students)	12 (1391 students)

- Three fewer teachers needed in combined staffing

- Fifty percent more student enrollments in combined staffing

APPENDIX B

N.C.A. CRITERIA SCHEDULE

I. Philosophy and Objectives

- A. Pupil population and school community
- B. Philosophy of the school

II. The Educational Program

- A. Basic guides
- B. The Program of studies
- C. Instruction
- D. Extra-classroom activities
- E. Guidance services
- F. Evaluation
- G. Health and safety services

III. Organization, Support and Control

- A. Type of organization
- B. Size of school
- C. Administrative policies and procedures
- D. Relations of professional staff and board of education
- E. Community support

IV. The School Staff

- A. Administrative and supervisory
- B. Teachers
- C. Special professional service personnel

(continued next page)

Appendix B - (continued)

D. Clerical and custodial staff

E. Records of preparation

F. Salaries

V. The Library and Instructional Material and Equipment

A. The library

B. Classroom instructional materials and equipment

VI. Administrative and Supervisory Services

A. Administrative relationships

B. Supervision

C. School records and reports

VII. School Plant

A. Site

B. Building

C. Safety

VIII. The School Year and School Day and Week

A. School year

B. School day and week

IX. Reguirements for Graduation, Pupil Load and Credit

A. Graduation requirements

B. Pupil load

C. Special provisions for granting credit

X. Reports to the Association

A. Annual report

B. Supplementary reports

APPENDIX C

N.C.A. TEACHER PREPARATION

1. Baccalaureate degree from N.C.A. College or similar regional accrediting association. Meet state legal requirements.

2. At least thirty hours of general education.

3. At least 18 semester hours in subjects assigned.

   a. Foreign languare - 18 s.h. in language taught

   b. Mathematics - 18 s.h.

   c. Business - 18 s.h. in Business Ed.

      - 5 s.h. in specific subject

   d. Language Arts

      - English - at least 18 s.h. - not more than 5 s.h. in speech and/or journalism

      - Speech - 13 s.h. in English and at least 5 s.h. in speech

      - Journalism - 13 s.h. in English and at least 5 s.h. in journalism

   e. Social Studies - at least 18 s.h. in Field

      - World History - at least 5 s.h. in World or European History

      - Modern Problems - at least 5 s.h. in History plus courses in Government, Economics and Sociology

      - Psychology - at least 5 s.h. in General Psychology

(continued next page)

Appendix C - (continued)

f. Science - at least 18 s.h. in Field with at least 10 s.h. in subject

- General Science - 18 s.h. in Science with at least one course each in Biological Science and Physical Science

- Physical Survey Science - 18 s.h. in Science with at least 10 s.h. in one of physical sciences.

g. Homemaking - 18 s.h.

h. Physical Education - 18 s.h.

i. Industrial Arts (General) - 18 s.h.

j. Industrial Education (vocational) - valid state certificate

k. Driver Education - valid state certificate

l. Art - 18 s.h.

m. Agriculture - 18 s.h.

n. Music - 18 s.h.

o. Core or block-of-time - 24 s.h. appropriately distributed among subjects in core program

4. Professional Preparation - 18 s.h. in professional teacher education

5. Master's Degree - Earn within ten years of service in a North Central School

APPENDIX D

HIGH SCHOOL OFFERINGS (GRADES 9-12 EXCEPT AS INDICATED)

Subjects	Iowa Shall be Taught	Missouri AAA Classification (A Classification)	Nebraska -Grs.10-12 except as indicated -Actually provided (unit interpretation)	South Dakota First Class Accreditation (Second Class Accreditation)	North Central Strongly Recommended
Language Arts e.g., English, Speech, Journalism	4 units	6 units including 2 speech, and/or dramatics (4 units)	-4 courses -35 sem. hours (3-1/2 units)	4 units (4 units)	4 units
Science	4 units	4 units 2 units	3 laboratory courses (3 units)	4 units (2 units)	4 units
Mathematics	4 units	4 units (2 units)	3 courses (3 units)	3 units (2 units)	4 units
Social Studies	4 units	5 units (3 units)	-4 courses -30 sem. hours (3 units)	4 units (3 units)	4 units
Foreign Language	2 units	4 units-incl. 2 diff. langs. or 3 units 1 lang. (small schools)	-2 courses -20 sem. hours (2 units) may be Gr.9-12	2 units (none)	2 units
Fine Arts	Courses shall be taught in Art, Music, Dramatics	4 units Art & Music (1 unit-Art & Music)	-20 sem. hours with not less than (annually) Voc. Music-4 s.h. Instr. Mus.-4 s.h. Art 6 s.h.	2 units (1 unit)	2 units (Music, Art, Dramatics)

	Iowa	Missouri	Nebraska	South Dakota	North Central
Practical Arts	5 units Bus. Ed., Ind. Arts, Hmking., Agric., Distr. Educ., Health Occupations	17 units (8 units) see distribution below	80 sem. hours in grades 9-12 in at least 3 areas (8 units)	6 units (4 units)	5 units (e.g., Bus., Ind. Arts, Agric., Homemaking)
Health and Physical Education	1 unit	1-1/2 units Fractional courses more than one year (1-1/2 units)	-2 courses -1 boy, 1 girl -2, 55 min. per each week	2 periods per week for 2 years	1 unit
Business Education		5 units (2 units)			
Homemaking		3 units (3 units)			
Industrial Arts		3 units (3 units Ind. Arts and/or Voc. Agric.)			
Trade & Industrial and/or Distributive Education		6 units			
Elections from Non-Voc. Subjects		(3 units)			
Basis	Statutory	Dep't. Regulations (Draft Copy)	Dep't. Regulations	Dep't. Regulations	Membership Approval

APPENDIX E

Minimum Criteria - Comprehensive High School[1]

1. Provide instruction in calculus;

2. Provide instruction in a modern language for four years ;

3. Arrange the schedule so that a student may study in any one year English, Mathematics, Science, a Foreign Language, Social Studies, Physical Education, Art or Music;

4. Provide one or more advanced placement courses;

5. Have enough English teachers so that "the average pupil load" is 120 or less. (still favors student load of no more than 100 in English).

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[1] James B. Conant, The Comprehensive High School, New York, McGraw-Hill, 1967, pp. 16-17.

APPENDIX F

SCHOOL-SIZE STUDIES

Factor	Source	Minimum	Optimum
Achievement	Feldt and Forsyth (61)	300	
	Gray (6)	400	999
	Smith (9)	400	800 +
	Jantze (10)		400-799
Cost	Griener (21)		500
	Smith (22)		800-1,200
	Norris (23)		600
	Stout and Rudolph (7)		500-800
	Gray (6)	1,000	
	Woodham (24)	350	
	Peck (25)	350	
	Sollars (64)		499
Educational Progress	Barr, Church and McGheny (33)	500	
	Ohio School Survey (65)	500	
	Morris (23)	1,000	
	N.E.A. (34)	300	
	Woodham (24)		450
Activities	Gray (6)		150-399
Activities (Parent Reaction)	Woods(43)		1,200-1,599
Teacher Qualifications	Collingsworth (45)	800	
Special Services	Conant (49)	400-500	
	Bohne (68)		750-900
Library	Gray (6)	1,000	
Counseling	Gray (6)		400-999
School Plant	Cornell (58)		1,500
	Mays (59)		2,000
	Highlands (60)		2,400
Staffing and Flexibility	Miller (35)		700-1,500

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